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chemical mechanical polishing apparatus, comprising:

a first polishing region having a first plurality of

substantially circular concentric grooves with a first width

and a first pitch;

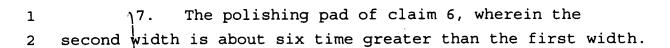
a second polishing region surrounding the first

polishing region and having a second plurality of

a second polishing region surrounding the first polishing region and having a second plurality of substantially circular concentric grooves with a second width and a second pitch; and

wherein at least one of the second width and second pitch differs from the first width and first pitch.

- 2. The polishing pad of claim 1, further comprising a third polishing region surrounding the second polishing region and having a third plurality of substantially circular concentric grooves with a third width and a third pitch.
- 3. The polishing pad of claim 2, wherein the third width and pitch are equal to the first width and pitch, respectively.
- 1 4. The polishing pad of claim 3, wherein the first 2 pitch is larger than the second pitch.
- The polishing pad of claim 4, wherein the first pitch is about two times larger than the second pitch.
- 6. The polishing pad of claim 3, wherein the first width is less than the second width.



- The polishing pad of claim 1, wherein each groove of the first and second pluralities of grooves has a depth of at least about 0.02 inches, a width of at least about 0.09 inches.
 - 9. The polishing pad of claim 8, wherein each groove of the first and second pluralities of grooves has a depth between about 0.02 and 0.05 inches.
 - 10. The polishing pad of claim 8, wherein each groove of the first and second pluralities of grooves has a width between about 0.015 and 0.04 inches.
 - 11. The polishing pad of claim 8, wherein each groove of the first and second pluralities of grooves has a pitch between about 0.09 and 0.24 inches.
 - 12. The polishing pad of claim 1, wherein the first plurality of grooves are separated by a first plurality of annular partitions and the second plurality of grooves are separated by a second plurality of annular partitions.
- 1 13. The polishing pad of claim 12, wherein the
 2 first plurality of partitions cover about 75% of the surface
 3 area of the first region and the second plurality of
 4 partitions cover about 50% of the surface area of the second
 5 region.

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- 1 14. The polishing pad of claim 12, wherein the 2 partitions of the first plurality of partitions are wider 3 than the partitions of the second plurality of partitions.
- 1 15. A polishing pad for polishing a substrate in a chemical mechanical polishing system, comprising:
- a polishing surface having a first polishing region
 and a second polishing region surrounding the first
 polishing region, a spiral groove formed in the polishing
 surface, the spiral groove having a first pitch in the first
 polishing region and a second, different pitch in the second
 polishing region.
- 1 16. The polishing pad of claim 15, wherein the 2 first pitch is larger than the second pitch.
 - 17. The polishing pad of claim 15, wherein the spiral groove has a uniform width.
- 1 18. The polishing pad of claim 15, further
 2 comprising a third polishing region surrounding the second
 3 polishing region, and the pitch of the spiral groove in the
 4 third polishing region is equal to the first pitch.
- 19. The polishing pad of claim 15 wherein the 2 spiral groove has a depth of at least about 0.02 inches, a 3 width of at least about 0.015 inches, and a pitch of at 4 least about 0.09 inches.
- 20. A polishing pad for polishing a substrate in a chemical mechanical polishing apparatus, comprising:
- a first polishing region having a first plurality of

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4	substantially circular concentric grooves; and
5	a second polishing region surrounding the first
6	polishing region and having a plurality of substantially
7	serpentline grooves.

- 1 21. The polishing pad of claim 20, wherein the 2 circular grooves have a first pitch, and the serpentine 3 grooves have a second, different pitch.
- The polishing pad of claim 20, wherein the circular grooves have a first width, and the serpentine grooves have a second, different width.
 - 23. The polishing pad of claim 20, wherein the serpentine grooves have a pitch between about one and two times their amplitude.
 - 24. The polishing pad of claim 20, wherein the serpentine growes have a pitch between about one-and-one-half and two times their width.
- 1 25. The polishing pad of claim 20, wherein the 2 serpentine grooves have a width of about 0.125 inches, a 3 pitch of about 0.2 inches, and an amplitude between about 4 0.2 and 0.4 inches.
- 26. The polishing pad of claim 20, further
 comprising a third polishing region surrounding the second
 polishing region and having a second plurality of
 substantially circular concentric grooves.
 - 27. A polishing\pad for polishing a substrate in a

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chemical mechanical polishing apparatus, comprising: 2 a first polishing region having a first plurality of 3 substantially circular concentric grooves; and 4 5 a second polishing region surrounding the first 6 polishing region and having a second plurality of 7 substantially circular concentric grooves, a center of the 8 second plurality of concentric grooves being offset from a center of the first plurality of concentric grooves. 9

- 28. The polishing pad of claim 27, wherein the center of the first plurality of grooves is offset from the center of the second plurality of grooves by a distance approximately equal to a pitch of the second plurality of grooves.
- 29. The polishing pad of claim 27, wherein the first plurality of grooves has a first pitch, and the second plurality of grooves has a second, different pitch.
 - 30. The polishing pad of claim 27, wherein the first plurality of grooves has a first width, and the second plurality of grooves has a second, different width.
- 31. The polishing pad of claim 27, further
 comprising a third polishing region surrounding the second
 polishing region and having a third plurality of
 substantially circular concentric grooves with a third width
 and a third pitch, the third plurality of concentric grooves
 being concentric with the first plurality of concentric
 grooves.
 - 32. The polishing pad of claim 27, wherein each

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2 groove of the first and second pluralities of grooves has a

3 depth of at least about 0.02 inches, a width of at least

4 about 0.015 inches, and a pitch of at least 0.09 inches.

1 \quad \dagger{33.} A polishing pad for polishing a substrate in a 2 chemical mechanical polishing apparatus, comprising:

a first polishing region having a first plurality of substantially circular concentric grooves; and

- a second polishing region surrounding the first polishing region and having a plurality of groove arc segments, the groove arc segments disposed along concentric circular paths such that each groove arc segment does not radially overlap a groove arc segment on an adjacent path.
- 34. The polishing pad of claim 33, wherein the circular grooves have a first pitch, and the circular paths have a second, different pitch.
- 35. The polishing pad of claim 33, wherein the circular grooves have a first width and the groove arc segments have a second, different width.
- 1 36. The polishing pad of claim 33, further
 2 comprising a third polishing region surrounding the second
 3 polishing region and having a second plurality of
 4 substantially circular concentric grooves.
- 37. The polishing pad of claim 33, wherein the circular grooves and groove arc segments have a depth of at least about 0.02 inches, a width of at least about 0.015 inches, and a pitch of at least 0.09 inches.

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1	38. A polishing pad for polishing a substrate in a
2	chemical mechanical polishing apparatus, comprising:
3	a first polishing region having a first plurality of
4	substantially circular concentric grooves; and
5	a $ackslash$ second polishing region surrounding the first
6	oolishing region and having a spiral groove.

- 1 39. The polishing pad of claim 38, wherein the 2 circular grooves have a first pitch, and the spiral groove 3 has a second different pitch.
- 1 40. The polishing pad of claim 38, wherein the 2 circular grooves have a first width, and the spiral groove 3 has a second, different width.
- 1 41. The polishing pad of claim 38, further
 2 comprising a third polishing region surrounding the second
 3 polishing region and having a second plurality of
 4 substantially circular concentric grooves.
- 1 42. The polishing pad of claim 38, wherein the 2 circular grooves and spiral groove have a depth of at least 3 about 0.02 inches, a width of at least about 0.015 inches, 4 and a pitch of at least 0.09 inches.